U. S. DEPARTMENT of AGRICULTURE ★ SOIL CONSERVATION SERVICE

WATER SUPPLY OUTLOOK FOR MONTANA

and

FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS

Collaborating with

MONTANA AGRICULTURAL EXPERIMENT STATION

AS OF

MAR. 1, 1981

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CAUTION

Irrigators May Face a Water Shortage This Year

SNOW COURSE MEASUREMENTS MADE IN MONTANA IN 1981 INDICATE THAT LOW FLOWS WILL OCCUR IN MANY STREAMS. STUDY THE WATER SUPPLY FORECAST CAREFULLY FOR STREAMFLOW AND/OR RESERVOIR STORAGE FIGURES THAT CONCERN YOUR AREA. KEEP IN TOUCH WITH YOUR IRRIGATION DISTRICT OR OTHER OFFICIALS FOR ESTIMATES OF THE SUPPLY AVAILABLE TO YOU. YOU MAY FIND YOU'LL NEED TO CHANGE CROPS, REDUCE PLANTED ACREAGE, ADJUST TIMING OF WATER APPLICATION, OR IMPROVE EFFICIENCY OF YOUR WATER DISTRIBUTION SYSTEM. MORE SPECIFIC ALTERNATIVES ARE SHOWN ON THE LAST PAGE OF THIS REPORT.

STATEWIDE OUTLOOK

MOUNTAIN SNOWPACK

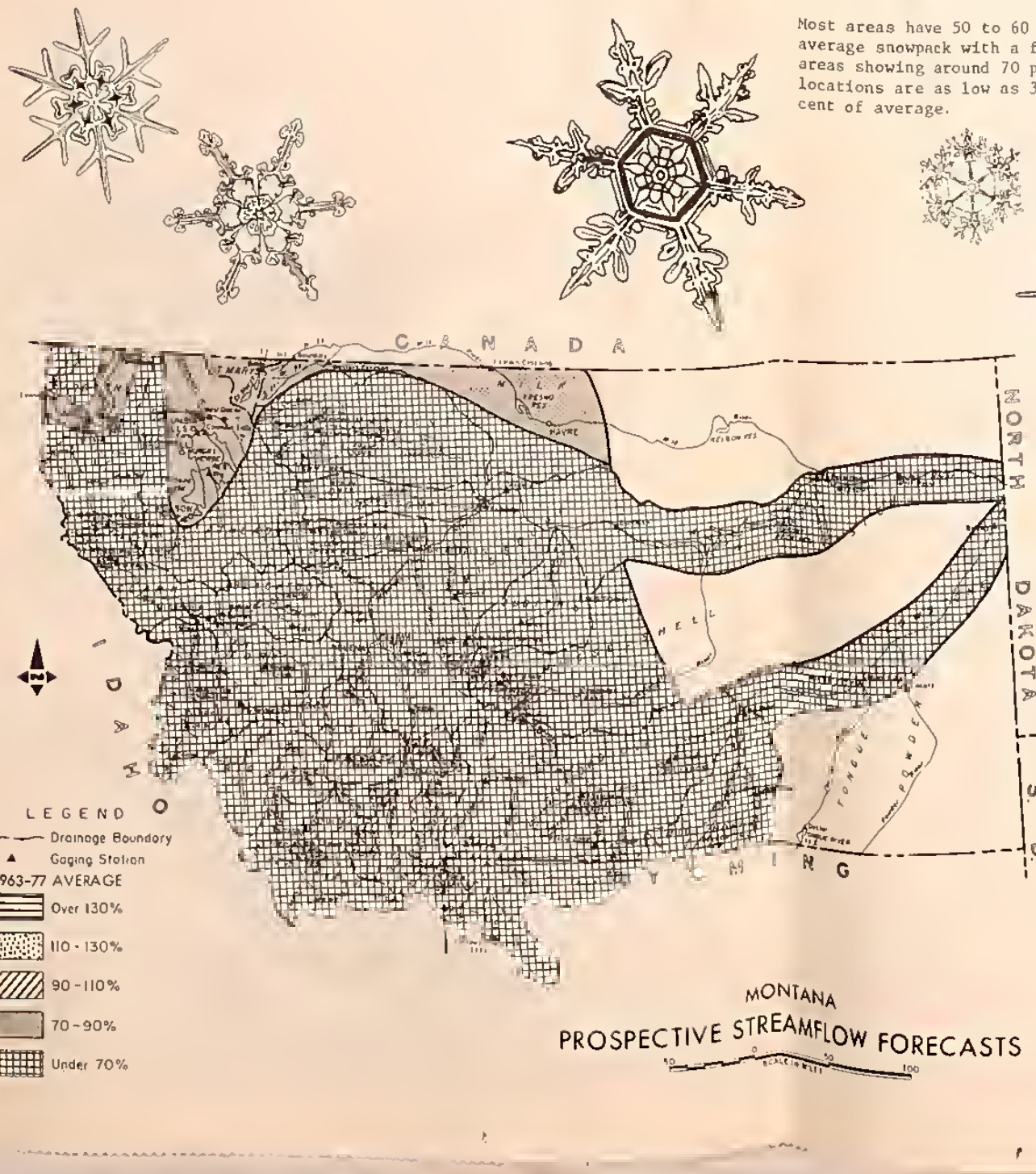
The mountain snowpack is still near record low even though storm activity increased in February. Nearly 15 percent of the snow courses measured have the lowest water content of record. Many of the remaining measurements are near record low.

Most areas have 50 to 60 percent of average snowpack with a few isolated areas showing around 70 percent. Some locations are as low as 30 to 40 percent of average.

One extreme cold front moved through the state in February but temperatures were predominately warm. Melt occurred at lower elevations and most valley areas are bare.

If present weather patterns continue, 1981 could end as low as 1977, a record low year. In 1977, March was a big precipitation month. Winter temperatures were much colder and there was a considerable amount of snow in the valley areas even though high elevations were deficient in snow cover.

Generally, about 85 percent of the season's snowpack is on the ground by March 1.



MONTANA
PROSPECTIVE STREAMFLOW FORECASTS

STREAMFLOW FORECASTS

Spring and summer runoff forecasts are a little lower than those issued last month. Except for drainages near Canada, the streamflow is expected to be near the low levels of the early 60's and 1977 in the Missouri and Yellowstone River drainages, and similar to 1961, 1966, 1973, and 1977 in most of the Columbia River drainage.

With the low snowpack, the main snowmelt runoff period is expected to be earlier and smaller than normal.

Shortages of irrigation water supplies will begin to appear in June and become fairly extensive in July and August.

Many streams will be dry in July and August.

Irrigators and reservoir operators need to be aware of the low runoff potential and consider these conditions when developing this year's operating plan.

Columbia River Drainage

STREAMFLOW FORECASTS

BASIN, STREAM and/or FORECAST POINT	PERIOD	THIS YEAR FORECAST (Thousand Acre Feet)	(Percent of Average)	PAST RECORD (Thousand Acre Feet) Last Year	Average
KOOTENAI RIVER below Libby Dam	APRIL - SEPTEMBER	6,660	92	6,221	7,246
FISHER RIVER near Libby		125	46		240
YAAK RIVER near Troy		350	65		537
KOOTENAI RIVER at Leonia (1)		7,400	83	7,670	8,883
INFLOW MOULTON RESERVOIR or BUTTE (Million Gallons)					
WARM SPRINGS CREEK AT MEYERS DAM near Anaconda (2)		35.0	69	29.6	50.7
FLINT CREEK near Southern Cross (3)		10.0	54	24.8	18.5
FLINT CREEK below Boulder Creek (4)		43.0	55		77.6
INFLOW LOWER WILLOW CREEK RESERVOIR near Hall (5)		6.5	38	13.0	16.9
MIDDLE FORK ROCK CREEK near Philipsburg		46.0	58		78.8
NEVADA CREEK nr Flnn		7.8	33		23.6
BLACKFOOT RIVER near Bonner		600	59		1,017
CLARK FORK RIVER above Milltown (6)		550	65		843
CLARK FORK RIVER above Missoula		1,150	62	1,929	1,859
WEST FORK BITTERROOT RIVER near Conner (7)		84.0	43		187
BITTERROOT RIVER near Darby		310	51		602
SKALKAHO CREEK near Hamilton		39.0	68		57.4
BURNT FORK CREEK near Stevensville		26.4	68	43.2	38.8
BITTERROOT RIVER at Missoula (9)		780	51		1,543
CLARK FORK RIVER below Missoula		1,930	57		3,405
CLARK FORK RIVER at St. Regis		2,600	58	4,348	4,521
NORTH FORK FLATHEAD RIVER near Columbia Falls		1,520	77		1,969
MIDDLE FORK FLATHEAD RIVER near West Glacier		1,450	76	1,747	1,911
SOUTH FORK FLATHEAD RIVER near Columbia Falls		1,600	70	1,946	2,302
FLATHEAD RIVER at Columbia Falls (10)		4,680	74	5,391	6,330
SWAN RIVER near Big Fork		475	70		681
FLATHEAD RIVER near Polson (11)		5,360	72	6,382	7,394
CLARK FORK RIVER near Plains (11)		8,080	65	11,550	12,340
THOMPSON RIVER near Thompson Falls		167	63		263
PROSPECT CREEK at Thompson Falls		77.0	54		143
CLARK FORK RIVER at Whitehorse Rapids		8,870	64		13,781

BASIN, STREAM and/or FORECAST POINT	PERIOD	THIS YEAR FORECAST (Thousand Acre Feet)	(Percent of Average)	PAST RECORD (Thousand Acre Feet) Last Year	Average
KOOTENAI RIVER below Libby Dam	APRIL - JULY	5,680	92	5,429	6,178
FISHER RIVER near Libby		114	45		253
YAAK RIVER near Troy		325	63		514
KOOTENAI RIVER at Leonia (1)		6,440	83	6,771	7,727
INFLOW MOULTON RESERVOIR or BUTTE (Million Gallons)		123	43	387	286
WARM SPRINGS CREEK AT MEYERS DAM near Anaconda (2)		29.0	70	23.5	41.2
FLINT CREEK near Southern Cross (3)		8.0	52	20.3	15.4
FLINT CREEK below Boulder Creek (4)		32.5	53		61.3
INFLOW LOWER WILLOW CREEK RESERVOIR near Hall (5)		5.8	36	12.2	16.0
MIDDLE FORK ROCK CREEK near Philipsburg		41.0	58		71.1
NEVADA CREEK nr Flnn		7.0	32		21.8
BLACKFOOT RIVER near Bonner		520	57		920
CLARK FORK RIVER above Milltown (6)		480	66		730
CLARK FORK RIVER above Missoula		1,000	61	1,730	1,651
WEST FORK BITTERROOT RIVER near Conner (7)		75.0	44		172
BITTERROOT RIVER near Darby		280	51		552
SKALKAHO CREEK near Hamilton		33.9	68		49.8
BURNT FORK CREEK near Stevensville		22.8	68	36.6	33.6
BITTERROOT RIVER at Missoula (9)		710	50		1,416
CLARK FORK RIVER below Missoula		1,710	56		3,069
CLARK FORK RIVER at St. Regis		2,340	57	3,938	4,078
NORTH FORK FLATHEAD RIVER near Columbia Falls		1,380	77		1,782
MIDDLE FORK FLATHEAD RIVER near West Glacier		1,310	75	1,576	1,750
SOUTH FORK FLATHEAD RIVER near Columbia Falls		1,480	69	1,808	2,159
FLATHEAD RIVER at Columbia Falls (10)		4,330	74	4,903	5,827
SWAN RIVER near Big Fork		415	70		596
FLATHEAD RIVER near Polson (11)		4,960	73	5,787	6,806
CLARK FORK RIVER near Plains (11)		7,350	66	10,462	11,222
THOMPSON RIVER near Thompson Falls		144	62		234
PROSPECT CREEK at Thompson Falls		70.0	53		133
CLARK FORK RIVER at Whitehorse Rapids		8,060	64		12,519

BASIN, STREAM and/or FORECAST POINT	PERIOD	THIS YEAR FORECAST (Thousand Acre Feet)	(Percent of Average)	PAST RECORD (Thousand Acre Feet) Last Year	Average
KOOTENAI RIVER below Libby Dam	APRIL - JUNE	5,040	82	5,944	6,150
FISHER RIVER near Libby		110	42	345	260
YAAK RIVER near Troy					
KOOTENAI RIVER at Leonia (1)					
INFLOW MOULTON RESERVOIR or BUTTE (Million Gallons)					
WARM SPRINGS CREEK AT MEYERS DAM near Anaconda (2)					
FLINT CREEK near Southern Cross (3)					
FLINT CREEK below Boulder Creek (4)					
INFLOW LOWER WILLOW CREEK RESERVOIR near Hall (5)					
MIDDLE FORK ROCK CREEK near Philipsburg					
NEVADA CREEK nr Flnn					
BLACKFOOT RIVER near Bonner		450	57		794
CLARK FORK RIVER above Milltown (6)		400	65		613
CLARK FORK RIVER above Missoula		850	60	1,474	1,408
WEST FORK BITTERROOT RIVER near Conner (7)					
BITTERROOT RIVER near Darby		245	51		480
SKALKAHO CREEK near Hamilton					
BURNT FORK CREEK near Stevensville					
BITTERROOT RIVER at Missoula (9)		630	52		1,211
CLARK FORK RIVER below Missoula		1,480	57		2,618
CLARK FORK RIVER at St. Regis		1,990	57	3,418	3,492
NORTH FORK FLATHEAD RIVER near Columbia Falls		1,150	77		1,498
MIDDLE FORK FLATHEAD RIVER near West Glacier		1,100	75	1,412	1,470
SOUTH FORK FLATHEAD RIVER near Columbia Falls		1,300	69	1,652	1,884
FLATHEAD RIVER at Columbia Falls (10)		3,700	75	4,443	4,064
SWAN RIVER near Big Fork					
FLATHEAD RIVER near Polson (11)		4,200	73	5,159	5,779
CLARK FORK RIVER near Plains (11)		6,250	66	9,163	9,507
THOMPSON RIVER near Thompson Falls					
PROSPECT CREEK at Thompson Falls					
CLARK FORK RIVER at Whitehorse Rapids					10,633

1 Adjustment for storage in Lake Koocanusa
2 Adjusted for storage in Silver Lake, diversions to and pumping from Georgetown Lake
3 Adjusted for storage in Georgetown Lake diversions from and pumping to Silver Lake
4 Sum of Flint Creek at Maxville and Boulder Creek at Maxville
5. Sum of North Fork Lower Willow Creek near Hall and South Fork Lower Willow Creek near Hall
6 Difference in observed flow Clark Fork above Missoula and Blackfoot near Bonner
7 Adjusted for storage in Painted Rocks Reservoir
8 Adjusted for diversion into Sunset Highline Canal.
9 Difference in observed flow Clark Fork above and below Missoula
10 Adjusted for storage in Hungry Horse Reservoir.
11. Adjusted for storage in Hungry Horse Reservoir and Flathead Lake.
12 Adjusted for storage in Hungry Horse Reservoir, Flathead Lake and Nyoon Rapids Reservoir

ALL FORECASTS PREPARED IN COOPERATION WITH THE NATIONAL WEATHER SERVICE

WATER SUPPLY OUTLOOK Expressed as "Poor, Fair, Average, Excellent" with Respect to Usual Supply

STREAM or AREA	Flow Period: Spring Season	Late Season
Tobacco	Fair	Fair
Little Bitterroot ...	Fair	Poor
Mission Valley	Fair	Poor
Flint Creek	Fair	Poor
Upper Clark Fork	Fair	Poor
Nevada Creek	Fair	Poor
Blackfoot	Fair	Poor
West-side Bitterroot	Fair	Poor
East-side Bitterroot	Fair	Poor
Bitterroot River	Fair	Poor
Lower Clark Fork	Fair	Poor

STREAMFLOW FORECASTS

Almost all forecasts are lower than those issued last month. In the Clark Fork, Bitterroot, and Blackfoot drainages, most forecasts are in the 50 to 65 percent of average range.

The Flathead and Kootenai River drainages are somewhat better with runoff in the Flathead expected to be around 70 to 75 percent of average.

The Kootenai River is a little better with 90 percent of average runoff anticipated. However, some of the tributaries to the Kootenai in Montana are much lower than the main stem.

Irrigation water is expected to be in short supply on most tributaries by late June to early July.

Each irrigator needs to assess his own operation to see if there is any way the effects of the low water supply can be minimized.

MOUNTAIN SNOWPACK

Almost all areas have 50 to 60 percent of average snowcover. Portions of the Yaak River drainage area around Glacier Park and two small areas along the Continental Divide have about 70 percent of average snowpack. Some melt occurred at low elevations and many of these locations have only 30 to 40 percent of average snowpack.

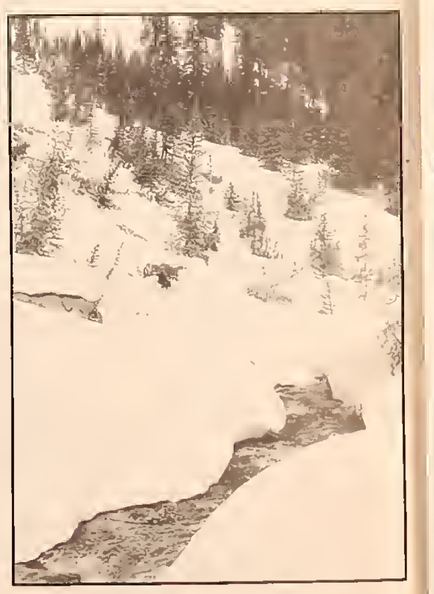
Precipitation in February was a little better than previous months, but some snow courses still have minimum of record water content with many others near record lows. The headwaters of the Kootenai River drainage in Canada have near to above average snowpack.

Since nearly 85 percent of the season's snowpack should be on the ground by March 1, a low snowpack situation this year appears impossible to avoid.

COLUMBIA RIVER DRAINAGE
MONTANA
PROSPECTIVE STREAMFLOW FORECASTS

SUMMARY of SNOW MEASUREMENTS
(COMPARISON WITH PREVIOUS YEARS)

RIVER BASIN and/or SUB-WATERSHED	Number of Courses Averaged	THIS YEAR'S SNOW WATER AS PERCENT OF: Last Year	Average
Kootenai/BC	24	95	85
Kootenai/Montana	19	82	57
Kootenai	43	89	70
Little Bitterroot	5	77	52
Flathead	37	97	67
Clark Fork above Blackfoot	30	83	59
Blackfoot	17	84	52
Clark Fork above Missoula	47	84	56
Bitterroot	10	71	53
Lower Clark Fork below Missoula .	12	77	53
Clark Fork (Total w/o Flathead) ..	69	79	55
Pend O'Reille (Clark Fork & Flathead)	106	87	60
Columbia (Pend O'Reille & Kootenai)	112	84	61



Mountain streams are beginning to open in preparation for spring snowmelt runoff.

Yellowstone River Drainage

STREAMFLOW FORECASTS

BASIN, STREAM and/or FORECAST POINT	PERIOD	THIS YEAR FORECAST (Thousand Acre Feet)	(Percent of Average)	PAST RECORD (Thousand Acre Feet) Last Year	Average
YELLOWSTONE RIVER at Corwin Springs	April - September	1,350	64	1,626	2,102
YELLOWSTONE RIVER near Livingston		1,480	60		2,471
BOULDER RIVER at Big Timber		235	56		416
STILLWATER near Absarokee (1)		395	60		660
CLARKS FORK RIVER near Belfry		380	59		644
ROCK CREEK near Red Lodge		74.0	63	131	118
INFLOW COONEY RESERVOIR near Boyd (2)		26.0	40		64.5
YELLOWSTONE RIVER at Billings		2,601	56	3,969	4,682
BIGHORN RIVER near St. Xavier (3)		1,165	57	1,611	2,034
LITTLE BIGHORN RIVER near Hardin		127	65		196
YELLOWSTONE RIVER at Miles City (4)		3,851	54		7,142
YELLOWSTONE RIVER near Sidney (5)		4,138	53		7,806

BASIN, STREAM and/or FORECAST POINT	PERIOD	THIS YEAR FORECAST (Thousand Acre Feet)	(Percent of Average)	PAST RECORD (Thousand Acre Feet) Last Year	Average
YELLOWSTONE RIVER at Corwin Springs	April - July	1,120	64	1,326	1,749
YELLOWSTONE RIVER near Livingston		1,215	59		2,048
BOULDER RIVER at Big Timber		220	58		382
STILLWATER near Absarokee (1)		325	59		555
CLARKS FORK RIVER near Belfry		340	60		564
ROCK CREEK near Red Lodge		54.0	59	104	91.4
INFLOW COONEY RESERVOIR near Boyd (2)		20.0	38		52.5
YELLOWSTONE RIVER at Billings		2,000	55	3,377	3,979
BIGHORN RIVER near St. Xavier (3)		1,070	57	1,457	1,861
LITTLE BIGHORN RIVER near Hardin		111	64		174
YELLOWSTONE RIVER at Miles City (4)		3,300	53		6,243
YELLOWSTONE RIVER near Sidney (5)		3,570	52		6,805

1 Adjusted for storage in Mystic Lake
2 Adjusted for storage in Cooney Reservoir
3 Adjusted for storage in Buffalo Bill Boyson, Bull Lake Pilot Butte & Bighorn Reservoirs
4 Adjusted for storage in Buffalo Bill Boyson, Bull Lake Pilot Butte Bighorn & Tongue River Reservoirs
5. Adjusted for reservoirs in 4. and diversions into the Lower Yellowstone Canal

ALL FORECASTS PREPARED IN COOPERATION WITH THE NATIONAL WEATHER SERVICE.

The mountain snowpack is well below average this season. Many exposed high elevation areas have only a light snow cover.

WATER SUPPLY OUTLOOK Expressed as "Poor, Fair, Average, Excellent" with Respect to Usual Supply

STREAM or AREA	Flow Period: Spring Season	Late Season
Yellowstone at Livingston	Fair	Poor
Shields	Fair	Poor
Boulder	Fair	Poor
Sweetgrass - Big Timber	Fair	Poor
Stillwater	Fair	Poor
Rock Creek	Fair	Poor
Clark's Fork	Fair	Poor
Yellowstone above Bighorn	Fair	Poor
Bighorn	Fair	Fair
Little Bighorn	Fair	Poor
Tongue	Fair	Poor
Powder	Fair	Poor
Lower Yellowstone ...	Fair	Poor

STREAMFLOW FORECASTS

Streamflow forecasts are slightly lower than those issued last month. In general, the spring and summer runoff is expected to be in the 50 to 60 percent of average range, similar to the 1960 and 1961 runoff, but a little higher than 1977.

The main snowmelt period is expected to be earlier, of shorter duration, and of less volume than usual. Shortages of irrigation water will begin in late June and persist through the remainder of the irrigation season. Many smaller streams will be dry below irrigation diversions.

The low water condition will affect each operation differently. Irrigators should consider any changes that can be made in this summer's operation to minimize the impacts of this year's water shortages.

MOUNTAIN SNOWPACK

A slight improvement in snowpack conditions occurred in February, but the water content of the mountain snowpack remains well below average.

Most areas now show that the amount of water stored in the snow is about 50 to 60 percent of average. The headwaters of the Little Bighorn have less snow, and are about 40 percent of average.

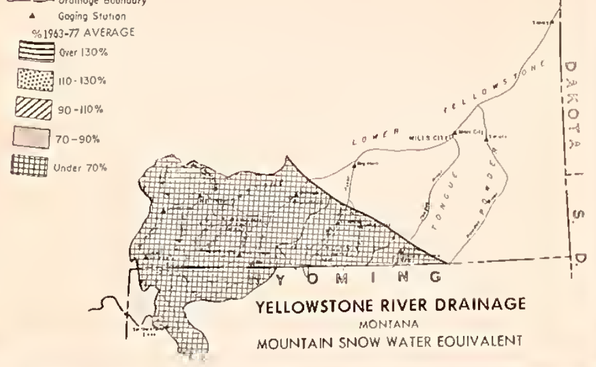
Some melt has occurred at lower elevations. Most valley areas now have no snow.

With nearly 85 percent of the season's snowpack on the ground by March 1st, chances of any significant improvement in this year's snowpack appear remote.

Soils under the snowpack have about average moisture.

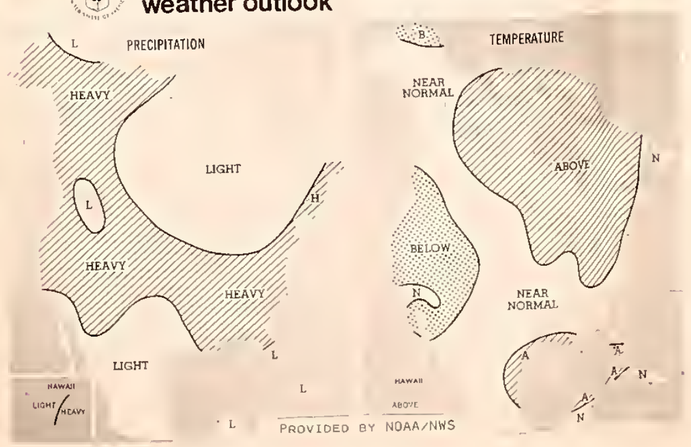
SUMMARY of SNOW MEASUREMENTS
(COMPARISON WITH PREVIOUS YEARS)

RIVER BASIN and/or SUB-WATERSHED	Number of Courses Averaged	THIS YEAR'S SNOW WATER AS PERCENT OF: Last Year	Average
Upper Yellowstone ab Livingston ...	17	67	52
Shields	6	98	61
Boulder & Stillwater	3	75	56
Rock Creek & Clark's Fork	11	68	55
Yellowstone (ab Bighorn River) ..	20	77	57
Bighorn/Wyoming ..	30	64	56
Little Bighorn ...	4	63	38
Bighorn (Total) ..	34	64	54
Tongue	5	70	47
Powder	6	57	64
Yellowstone (Total)	65	68	56



YELLOWSTONE RIVER DRAINAGE
MONTANA
MOUNTAIN SNOW WATER EQUIVALENT

average monthly weather outlook FOR MARCH 1981



PROVIDED BY NOAA/NWS

SNOW SURVEY DATA

SNOW March 1, 1981

DRAINAGE BASIN and/or SNOW COURSE NAME	Elevation	THIS YEAR Date of Survey	Snow Depth (Inches)	Water Content (Inches)	PAST RECORD Water Content (Inches) Last Year	Average
ABOVE BURKE (ID)	4100	2/27	24	9.0	11.6	22.9
ABUNDANCE LAKE	8800	2/28	46	12.3	13.6	18.9
AMBROSE	6480	2/26	23	5.3	10.4	11.9
ARCH FALLS	7350	2/25	15	3.8	8.7	11.2
ASHLEY DIVIDE	4820	2/25	14	3.4	-	-
ASHLEY LAKE	4000	2/25	11	3.1	-	-
BADGER PASS	6900	3/02	65	21.8A	24.7	36.7
BADGER PASS PILLOW	6900	3/02	SP	20.2	23.5	-
BALD EAGLE PEAK	5700	2/24	86	33.6	39.1	56.1
BALD MOUNTAIN (WY)	9380	2/23	41	8.8	10.6	19.3
BALD RIDGE	7500	2/25	24	6.7	7.9	11.5
BANFIELD MOUNTAIN	5600	2/24	42	14.3	16.2	22.9
BANFIELD MOUNTAIN PILLOW	5600	2/24	SP	13.0	15.5	19.4
BAREE CREEK	5500	2/27	69	26.0	27.4	43.8
BAREE MIDWAY	4600	2/27	47	14.8	21.4	34.0
BAREE TRAIL	3800	2/27	4	.5	4.7	10.0
BARKER LAKES PILLOW	8250	3/01	SP	9.6	9.7	-
BASIN CREEK	7180	2/25	23	5.6	5.2	7.0
BASIN CREEK PILLOW	7180	2/25	SP	6.4	-	-
BASSOO PEAK	5150	2/27	15	4.0	5.9	9.6
BEAGLE SPRINGS	8850	2/22	25	6.0	6.8	-
BEAGLE SPRINGS PILLOW	8850	2/22	SP	5.0	6.0	-
BEAR BASIN	8150	2/24	44	12.4	13.8	19.5
BEAR MOUNTAIN (ID)	5400	2/24	94	37.4A	38.1	53.7
BEAR PAW SKI AREA	5200	2/28	8	2.2	3.2	6.3
BEAVER LAKE	5900	3/02	36	9.9	13.9	21.9
BERRY MEADOW	7000	3/02	10	2.6	5.5	7.2
BIG SKY	7700	2/25	33	8.0	12.2	13.8
BIG SKY MEADOW	6350	2/24	23	6.4	8.1	8.6
BIG SNOWY	7150	2/26	42	13.8	11.2	19.0
BIG SPRINGS (ID)	6500	2/27	46	12.1	14.4	18.7
BLACK BEAR	7950	2/25	72	23.3	32.8	35.1
BLACK BEAR PILLOW	7950	2/25	SP	22.5	28.4	32.2
BLACK CANYON (ID)	7850	2/27	72	22.2	-	29.9
BLACK MOOSE (ID)	8120	2/27	70	21.8	-	36.1
BLACK MOUNTAIN	7750	2/26	36	9.8	11.6	-
BLACK PINE	7100	2/26	20	5.5	7.8	13.2
BLACK PINE PILLOW	7000	2/26	SP	8.0	9.0	13.8
BLOODY DICK	7600	2/26	35	8.3	12.0	12.9
BLOODY DICK PILLOW	7600	2/26	SP	8.6	8.4	-
BLUE LAKE	5900	3/02	39	13.1A	16.0	25.9
BOTS SOTS	8000	2/27	9	2.5	6.7	6.6
BOULDER MOUNTAIN	7950	2/24	40	12.0	12.4	17.1
BOULDER MOUNTAIN PILLOW	7950	2/24	SP	13.9	14.0	-
BOX CANYON	6670	2/27	22	5.8	9.2	12.1
BOX CANYON PILLOW	6670	2/27	SP	5.2	7.1	-
BOXELDER CREEK	5100	2/28	8	1.6	4.4	6.8
BRANHAM LAKES	8850	2/24	70	19.0	18.0	26.2
BRIDGER BOWL	7250	2/26	48	15.6	13.9	24.9
BRIDGER BOWL PILLOW	7250	2/26	SP	17.1	13.7	23.7

SNOW March 1, 1981

DRAINAGE BASIN and/or SNOW COURSE NAME	Elevation	THIS YEAR Date of Survey	Snow Depth (Inches)	Water Content (Inches)	PAST RECORD Water Content (Inches) Last Year	Average
BRISTOW CREEK	3900	2/24	15	5.6	6.4	12.6
BRUSH CREEK TIMBER	5000	2/26	17	4.5	5.9	9.5
BULL MOUNTAIN	6600	2/27	5	1.4	4.5	4.9
BURGESS R.S. (WY)	7880	2/26	12	3.1	5.1	7.1
CABIN CREEK	5200	3/04	6	1.8	4.4	6.6
CALL ROAD	8050	2/22	28	6.3	9.0	10.2
CALVERT CREEK	6450	2/27	26	6.0	7.9	11.4
CALVERT CREEK PILLOW	6450	2/27	SP	4.4	6.5	9.5
CAMP CREEK (ID)	6800	2/27	32	6.8	6.0	9.8
CAMP MISERY	6400	2/23	99	36.5	30.3	43.9
CAMP SENIA	7890	2/27	8	2.2	5.9	5.1
CANYON (WY)	7750	3/01	34	7.8	10.3	14.3
CARROT BASIN	9000	2/24	64	20.4	23.8	32.7
CARROT BASIN PILLOW	9000	2/24	SP	15.9	18.5	24.2
CARTER CREEK	7400	3/01	10	1.8	-	4.3
CASHE CREEK PILLOW	7800	3/01	SP	4.7	-	-
CEDAR GROVE	4100	2/24	8	2.7	8.2	12.0
CHESSMAN RESERVOIR	6200	2/26	6	1.6	3.5	3.5
CHICKEN CREEK	4060	2/25	31	10.3	9.0	-
CLOVER MEADOW	8800	2/22	40	10.2	12.0	14.9
CLOVER MEADOW PILLOW	8800	2/22	SP	10.4	-	-
COLE CREEK	7850	2/25	30	9.4	14.4	15.1
COLE CREEK PILLOW	7850	2/25	SP	8.5	12.1	15.0
COLLEY CREEK	6300	2/27	14	3.5	5.5	8.1
COMBINATION	5600	2/26	4	1.0	3.9	5.6
COMBINATION PILLOW	5600	2/26	SP	1.7	4.5	5.8
COOKE STATION	8150	2/27	44	11.3	13.7	18.0
COPPER BOTTOM	5200	2/24	11	4.0	6.2	11.5
COPPER BOTTOM PILLOW	5200	2/24	SP	6.3	8.1	13.0
COPPER CAMP	6950	2/24	57	18.2	19.5	29.8
COPPER CAMP PILLOW	6950	2/24	SP	20.1	18.8	37.2
COPPER CREEK	5700	2/24	16	4.8	8.2	15.1
COPPER LAKE CREEK	6100	2/24	33	10.5	13.9	23.5
COPPER MOUNTAIN	7700	2/27	28	7.7	6.9	9.9
COTTONWOOD CREEK	6400	2/27	15	4.1	5.6	8.0
COYOTE HILL	4200	2/26	15	4.6	6.2	10.0
CREVICE MOUNTAIN	8400	2/26	20	4.3	7.3	9.8
CRYSTAL LAKE	6100	2/26	26	9.4	8.3	12.4
CRYSTAL LAKE PILLOW	6100	2/26	SP	6.9	7.2	-
DAD CREEK LAKE	8400	2/22	28	7.0	11.9	11.6
DAISY PEAK	7600	2/25	23	5.2	7.2	10.0
DALY CREEK	5780	2/25	22	4.6	9.2	10.7
DARKHORSE LAKE	8600	2/28	56	16.4	16.5	25.2
DARKHORSE LAKE PILLOW	8600	2/28	SP	16.1	-	-
DAVIS CREEK	5400	2/24	50	17.9	19.8	22.9
DEADMAN CREEK	6450	3/03	18	6.0	6.0	11.0
DEADMAN CREEK PILLOW	6450	3/03	SP	4.1	6.1	9.8
DESERT MOUNTAIN	5600	2/23	37	10.9	10.9	14.5
DEVILS SLIDE	8100	2/25	36	10.4	14.0	20.0
DISCOVERY BASIN	7050	2/27	23	5.8	7.8	9.9

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DIVIDE	7800	2/22	25	5.5	9.3	9.8
DIVIDE PILLOW	7800	2/22	SP	5.6	8.3	10.1
DIX HILL	6400	3/01	19	6.2	6.9	9.9
EAST ENTRANCE (WY)	7000	2/28	19	4.8	9.0	9.7
EAST FORK R.S.	5400	2/27	4	.8	4.5	6.8
EL DORADO MINE	7800	2/25	43	12.2	12.4	18.9
ELK HORN SPRINGS	7800	2/28	22	5.0	7.1	8.5
ELK PEAK	8000	2/26	36	10.6	11.0	14.9
EMERY CREEK	4350	2/23	35	11.8	9.6	14.9
EMERY CREEK PILLOW	4350	2/23	SP	10.8	9.0	-
FISH CREEK	8000	2/25	26	5.8	5.7	8.3
FISHER CREEK	9100	2/27	72	21.0	25.3	34.3
FISHER CREEK PILLOW	9100	2/27	SP	20.8	25.6	32.3
FIVE-BULL	5700	2/23	3	.8	3.7	6.9
FIVE SPRINGS FALLS (WY)	7620	3/02	9	2.2	3.1	7.3
FALTTOP MOUNTAIN PILLOW	6300	3/01	SP	35.0	33.1	44.5
FLEECER RIDGE	7500	2/27	24	5.7	7.0	10.1
FOOLHEN	8280	2/28	40	10.6	11.1	15.6
FOUR MILE	6900	3/02	16	5.3	5.8	7.7
FOURTH OF JULY	3450	2/27	8	2.5	8.3	-
FRED BURR PASS	8000	2/24	50	14.8	16.0	22.9
FREIGHT CREEK	6000	3/02	28	7.8	9.2	14.1
FRIDAY HILL	4620	2/27	38	14.0	13.8	-
FROHNER MEADOWS	6480	2/27	10	2.3	6.5	7.5
FROHNER MEADOWS PILLOW	6480	2/27	SP	5.2	6.7	8.0
GARVER CREEK	4250	2/24	24	7.9	8.0	11.4
GARVER CREEK PILLOW	4250	2/24	SP	8.0	9.0	10.3
GIBBONS PASS	7100	2/23	59	16.5	16.6	21.2
GOAT MOUNTAIN	7000	3/05	14	3.5	6.4	10.1
GOLD CREEK LAKE	7200	2/25	28	8.0	9.4	14.0
GOLD STONE	8100	2/26	46	11.9	11.6	15.5
GRASSHOPPER	7000	2/26	4	1.0	4.5	5.3
GRAVE CREEK	4300	2/24	26	9.4	10.6	17.5
GRAVE CREEK PILLOW	4300	2/24	SP	9.2	10.6	17.4
GRIFFIN CREEK DIVIDE	5150	2/27	23	5.5	8.0	10.9
GRIZZLY PEAK	8400	2/25	24	8.1	14.1	13.2
GUNSIGHT LAKE	6300	3/02	69	24.2	25.3	38.2
HALVERSON CREEK (ID)	4850	2/24	82	35.2	34.0	39.1
HAND CREEK	5030	2/26	31	8.4	9.0	11.8
HAND CREEK PILLOW	5030	2/26	SP	8.1	9.2	-
HAWKINS LAKE	6450	2/24	61	22.2	24.8	28.6
HAWKINS LAKE PILLOW	6450	2/24	SP	19.5	22.6	27.5
HEART LAKE TRAIL	4800	2/26	26	7.6	14.1	21.1
HEBGEN DAM	6550	2/23	29	7.3	9.2	11.2
HELL ROARING DIVIDE	5770	2/28	65	21.6	20.2	29.6
HERRIG JUNCTION	4850	2/25	62	18.7	17.0	-
HIGHWOOD STATION	4600	2/27	0	.0	.1	4.4
HOLBROOK	4530	2/27	10	4.0A	5.4	9.6
HOOD MEADOW	6600	2/25	12	3.2	8.0	9.7
HOODOO BASIN	6000	2/26	87	30.6	37.2	45.4
HOODOO BASIN PILLOW	6000	2/26	SP	27.0	34.0	44.0
HOODOO CREEK	5900	2/26	79	25.8	34.5	42.0
INDEPENDENCE	7850	2/27	38	10.3	12.8	17.1
INTERGAARD	6450	2/28	14	4.0	5.8	7.9

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ISLAND PARK (ID)	6310	2/27	43	11.6	12.9	15.1
JACK CREEK	7500	2/25	9	2.2	5.6	4.9
JAHNKE LAKE TRAIL	7200	2/26	28	6.4	7.9	9.1
JOHNSON PARK	6450	2/25	10	2.4	3.8	6.8
KEELER CREEK	3300	2/24	4	1.9	7.1	14.6
KILGORE (ID)	6200	2/26	27	8.8	8.6	10.6
KINGS HILL	7500	3/03	28	8.2	8.6	12.7
KISHENEHN	3890	2/26	20	5.8	4.4	8.6
KIT CARSON (ID)	5020	2/27	17	5.1	7.6	-
KIWANIS CAMP	3720	2/27	0	.0	.0	1.7
KRAFT CREEK PILLOW	4750	3/01	SP	4.3	-	-
LAKE CAMP (WY)	A010	3/02	22	5.9	6.7	8.3
LAKE CREEK	6100	2/22	20	4.2	6.2	8.6
LAKEVIEW CANYON	6930	2/27	32	7.2	8.4	10.8
LAKEVIEW RIDGE	7400	2/27	31	6.5	7.2	9.7
LAKEVIEW RIDGE PILLOW	7400	2/27	SP	9.5	6.9	-
LATHAM SPRINGS (ID)	7650	2/27	66	20.0	-	28.6
LEMHI PASS	7480	2/28	20	5.0	6.6	8.1
LEMHI RIDGE	8100	2/28	28	6.2	7.7	8.9
LEMHI RIDGE PILLOW	8100	2/28	SP	6.8	7.3	9.0
LICK CREEK	6860	2/25	19	5.4	8.8	9.0
LICK CREEK PILLOW	6860	2/25	SP	7.6	7.7	8.6
LITTLE PARK	7400	2/24	36	9.6	12.4	14.6
LOGAN CREEK	4300	2/25	16	3.8	4.7	7.3
LOLO PASS (ID)	5230	2/27	41	12.9	21.5	37.5
LONE MOUNTAIN	8800	2/25	45	11.8	17.0	20.5
LOOKOUT (ID)	5250	2/27	49	16.6	20.6	31.0
LOST HORSE	5940	2/27	50	15.4	21.5	30.2
LOST SOUL	4800	2/24	34	10.8	10.6	15.6
LOWER TWIN	7900	3/02	53	13.9	14.1	18.7
LOWER TWIN PILLOW	7900	3/02	SP	16.7	12.3	-
LUBRECHT FLUME	4200	2/28	0	.0	4.1	6.5
LUBRECHT FLUME PILLOW	4200	2/28	SP	.0	3.7	6.4
LUBRECHT FOREST # 3	5450	3/02	10	2.7	3.5	7.0
LUBRECHT FOREST # 4	4650	3/02	2	.6	1.6	3.5
LUBRECHT FOREST # 6	4040	3/02	2	.6	1.9	4.0
LUBRECHT HYDROPLOT	4200	2/28	3	1.2	3.6	5.7
LUCKY DOG (ID)	6900	2/27	56	16.0	-	22.1
LUPINE CREEK (WY)	7300	2/27	24	4.5	5.8	9.9
MADISON PLATEAU	7750	2/25	43	13.1	16.8	17.8
MADISON PLATEAU PILLOW	7750	2/25	SP	13.8	18.0	18.7
MANY GLACIER	4960	2/28	40	12.8	14.4	-
MARIAS PASS	5250	2/27	29	9.6	11.4	16.3
MAYNARD CREEK	6210	2/26	24	7.2	8.0	14.7
MAYNARD CREEK PILLOW	6210	2/26	SP	9.1	7.8	10.0
MIDDLE MILL CREEK	7850	2/24	43	11.8	9.0	14.7
MILL CREEK	7500	2/27	28	7.4	8.5	12.0
MINERAL CREEK	4000	2/26	39	12.4	13.3	17.2
MONUMENT PEAK	8800	2/27	54	15.7	19.2	24.3
MONUMENT PEAK PILLOW	8800	2/27	SP	11.9	15.0	-

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MOOSE CREEK (ID)	6200	2/27	41	12.6	9.6	15.6
MOSQUITO RIDGE (ID)	5200	2/25	66	23.3	24.1	34.6
MOULTON RESERVOIR	6850	2/26	17	4.0	6.6	-
MOUNT LOCKHART	6400	2/25	36	10.6	15.8	20.6
MOUNT LOCKHART PILLOW	6400	2/25	SP	10.8	16.1	18.2
MUDD LAKE	7650	2/27	43	11.8	15.1	18.7
MULE CREEK	8300	2/28	39	9.7	-	-
MULE CREEK PILLOW	8300	2/28	SP	10.1	-	-
NEVADA CREEK	6480	2/24	29	8.2	-	-
NEVADA CREEK PILLOW	6480	2/24	SP	8.2	7.1	-
NEW WORLD	6900	2/24	27	8.9	11.8	13.2
NEWTON MOUNTAIN	5600	2/27	69	17.0	26.0	-
NEZ PERCE CAMP	5580	2/27	32	9.3	9.6	13.8
NEZ PERCE CAMP PILLOW	5580	2/27	SP	9.2	9.4	-
NEZ PERCE CREEK	6500	2/27	13	3.8	5.1	7.0
NEZ PERCE PASS	6570	2/27	30	8.5	10.6	15.7
NOISY BASIN	6040	2/23	98	35.6	29.1	39.6
NOISY BASIN PILLOW	6040	2/23	SP	31.3	23.4	34.4
NORRIS BASIN (WY)	7500	2/28	25	5.2	9.0	10.1
NORTH FK. ELK CREEK	6250	2/28	20	5.7	7.9	11.7
NORTH FK. ELK CREEK PILLOW	6250	2/28	SP	6.2	8.5	11.9
NORTH FORK JOCKO	6330	2/23	84	27.8	26.7	41.1
NORTH MEADOW	7500	3/02	14	4.6	5.9	7.2
NORTHEAST ENTRANCE	7400	3/01	18	4.4	5.9	9.1
NORTHEAST ENTRANCE PILLOW	7400	3/01	SP	4.9	6.7	8.7
NOTCH	8500	2/22	33	8.2	14.0	13.3
OLD FAITHFUL (WY)	7400	3/02	34	8.7	11.5	-
OPHIR PARK	7150	3/01	41	12.6	10.4	17.9
PARKER'S PEAK (WY)	9400	3/01	40	11.6A	25.1	29.9
PETERSON MEADOWS	7200	2/25	22	6.8	7.2	9.1
PETERSON MEADOWS PILLOW	7200	2/25	SP	7.1	6.3	9.1
PICKFOOT CREEK	6650	2/24	12	4.3	7.3	-
PICKFOOT CREEK PILLOW	6650	2/24	SP	3.7	6.2	-
PICNIC GROUNDS	6200	2/28	6	1.1	3.1	4.2
PIKE CREEK	5930	2/22	49	16.0	-	-
PIKE CREEK PILLOW	5930	2/22	SP	15.5	17.4	-
PIPESTONE PASS	7200	2/27	6	1.0	4.3	4.5
PITCHSTONE PLATEAU (WY)	8520	2/23	53	16.4A	44.5	48.6
PLACER BASIN PILLOW	8830	3/01	SP	10.2	-	-
POORMAN CREEK	5100	2/24	43	16.6	20.5	32.4
POORMAN CREEK PILLOW	5100	2/24	SP	14.2	16.8	29.6
PORCUPINE	6500	2/25	11	3.2	5.1	6.7
PORCUPINE PILLOW	6500	2/25	SP	3.8	5.2	-
POTOMACETON PARK	7150	2/23	34	8.4	10.0	13.4
RED MOUNTAIN	6000	2/27	41	11.9	14.2	17.5
RED TOP	5260	2/27	58	19.9	18.7	-
ROCK CREEK	5600	2/26	15	4.8	6.8	8.5
ROCK CREEK MEADOWS	8160	2/26	46	12.2	10.2	19.4
ROCKER PEAK	8000	3/02	33	10.6	10.6	13.7
ROCKER PEAK PILLOW	8000	3/02	SP	11.4	10.8	13.0

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ROCKY BOY	4700	2/28	2	.2	1.1	4.5
ROCKY BOY PILLOW	4700	2/27	SP	1.8	4.2	4.4
SACAJAWEA	6550	2/26	24	8.4	9.2	13.3
SADDLE MOUNTAIN	7940	2/23	63	17.0A	17.0	22.9
SADDLE MOUNTAIN PILLOW	7940	2/23	SP	18.1	16.4	23.9
SAND BASIN LOWER	6485	2/26	29	6.0	-	-
SAVAGE PASS (ID)	6600	2/25	54	15.0	19.8	24.1
SAWTELL MOUNTAIN (ID)	8720	2/26	56	21.0	28.6	28.4
SENTINEL CREEK	8300	2/23	50	13.8	16.6	21.3
SHOWER FALLS	8100	2/25	40	11.7	15.2	21.4
SHOWER FALLS PILLOW	8100	2/25	SP	12.0	14.4	21.0
SILVER RUN	6630	2/25	4	1.0	3.6	4.5
SILVER RUN PILLOW	6630	2/27	SP	1.5	5.0	-
SKALKAHO SUMMIT	7260	2/27	52	15.3	18.7	23.9
SKALKAHO SUMMIT PILLOW	7260	2/27	SP	14.8	17.3	-
SKYLARK TRAIL PILLOW	6200	3/01	SP	16.7	-	-
SLAG-A-MELT LAKE	8750	2/28	59	17.3	17.9	24.2
SLIDE ROCK MOUNTAIN	7100	2/26	27	7.2	9.2	15.7
SMUGGLER MINE	6960	2/24	23	5.6	6.5	8.9
SOUTH FORK SHIELDS	8100	2/25	54	16.0	14.8	21.3
SOUTH FORK SHIELDS PILLOW	8100	2/25	SP	11.3	11.0	-
SPOTTED BEAR MOUNTAIN	7000	3/02	23	6.6A	9.9	14.6
SPUR PARK	8000	3/03	42	13.6	11.4	19.2
SPUR PARK PILLOW	8000	3/03	SP	14.1	12.4	20.0
STAHL PEAK	6050	2/24	77	27.5	29.4	36.8
STAHL PEAK PILLOW	6050	2/24	SP	23.8	26.0	29.8
STEAMBOAT POINT (WY)	7560	2/26	6	1.3	5.7	6.8
STEMPLE PASS	6600	2/27	20	5.2	5.1	9.6
STORM LAKE	7780	2/25	28	8.0	8.4	11.6
STRYKER BASIN	6180	2/25	69	21.5	22.7	-
STUART HILL	6500	2/28	6	1.8	4.9	6.4
STUART MOUNTAIN	7400	2/23	67	21.5	23.3	29.3
SUCKER CREEK	3960	2/28	0	.0	.0	.7
SUGARLOAF	7350	2/27	20	6.8	7.8	9.5
SUNSET (ID)	5540	2/25	70	22.9	24.3	26.0
SYLVAN PASS (WY)	7100	2/28	26	6.7	10.0	12.2
TARGHEE PASS (ID)	7000	2/26	30	7.6	9.0	13.6
TAYLOR ROAD	4080	2/28	1	.1	.0	3.3
TEN MILE LOWER	6600	2/26	15	4.0	5.5	6.8
TEN MILE MIDDLE	6800	2/26	30	8.6	7.8	10.3
TEN MILE UPPER	8000	2/26	38	11.4	8.5	12.8
TEPEE CREEK	8000	2/22	37	8.4	10.1	14.0
TEPEE CREEK PILLOW	8000	2/22	SP	8.3	9.3	11.1
THUMB DIVIDE (WY)	7900	2/26	36	9.6	15.1	18.2
TIMBERLINE CREEK	8850	2/27	32	8.5	11.1	13.0
TOGWOTEE PASS (WY)	9600	2/26	56	16.8	20.4	25.2
TRAIL CREEK	7090	2/28	21	4.6	6.7	7.3
TRINKUS LAKE	6100	3/02	75	27.8	26.7	40.2
TRUMAN CREEK	4060	2/26	4	.9	-	-
TV MOUNTAIN	6800	2/23	36	10.2	11.6	17.2
TWELVEMILE CREEK	5600	2/27	27	8.0	15.8	21.1
TWELVEMILE CREEK PILLOW	5600	2/27	SP	6.7	14.6	17.7

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TWENTY-ONE MILE	7150	2/27	39	10.0	10.0	16.6
TWIN CREEKS	3580	3/02	10	3.2A	6.3	12.0
TWIN LAKES	6510	2/27	66	21.3	29.4	38.2
TWIN LAKES PILLOW	6510	2/27	SP	21.4	28.9	37.7
TWO OCEAN PLATEAU (WY)	9160	3/01	55	15.4A	18.6	28.0
UPPER HOLLAND LAKE	6200	2/23	69	20.4	19.8	33.7
VALLEY VIEW (ID)	6500	2/26	31	9.2	11.7	15.6
WALDRON	5600	2/25	5	1.0	6.6	10.1
WALDRON PILLOW	5600	2/25	SP	4.5	6.9	10.1
WARM SPRINGS	8250	2/24	43	12.2	12.6	-
WARM SPRINGS PILLOW	8250	2/24	SP	13.4	15.5	-
WEASEL DIVIDE	5450	2/24	67	23.1	24.9	32.4
WEST YELLOWSTONE	6700	2/27	26	4.6	8.6	11.1
WEST YELLOWSTONE PILLOW	6700	2/27	SP	4.7	6.5	8.0
WHISKEY CREEK	6800	2/25	40	11.5	15.6	17.9
WHISKEY CREEK PILLOW	6800	2/25	SP	10.0	12.2	14.9
WHITE ELEPHANT (ID)	7700	2/26	50	14.7	21.2	18.4
WHITE MILL	8700	2/27	56	15.5	18.8	25.0
WHITE MILL PILLOW	8700	2/27	SP	13.5	17.6	20.8
WHITE PINE RIDGE	8850	2/22	16	3.2	4.8	4.6
WILLOW CREEK	6500	2/25	12	3.6	8.6	8.7
WOLVERINE (WY)	7650	2/26	27	7.5	9.7	10.7
WOOD CREEK	5960	2/23	13	3.6	7.9	-
WOOD CREEK PILLOW	5960	2/23	SP	5.0	7.5	-
WRONG CREEK	5700	3/03	22	6.2	7.8	13.4
WRONG RIDGE	6800	3/03	33	9.3	12.8	18.3
YOUNTS PEAK (WY)	8350	2/23	23	6.0A	15.3	19.4

LATE ARRIVING DATA

BIG CREEK	6750	3/06	80	29.6	35.1	39.4
FATTY CREEK	5500	3/06	43	14.7	18.7	20.8

RESERVOIR STORAGE (Thousand Acre Feet) END OF MONTH

Basin or Stream	Reservoir	Usable Capacity	Usable Storage This Year	Last Year	Average
	COLUMBIA				
Kootenai	Koocanusa	5,694.0	2,155.0	2,081.0	--
Flathead	Hungry Horse	3,428.0	2,769.0	2,043.0	2,200.0
	Flathead Lake	1,791.0	858.2	636.2	994.6
	Camas (4)	45.2	24.6	16.7	21.9
	Mission Valley (8)	100.3	38.8	28.6	38.7
Clark Fork	Georgetown Lake	31.0	28.4	24.7	25.6
	Lower Willow Creek	4.9	2.3	1.4	1.7
	Nevada Creek	12.6	7.8	2.9	5.5
	Noxon Rapids	334.6	318.2	265.4	299.1
Bitterroot	Painted Rocks	31.7	--	--	17.4
	Como	34.9	25.3	--	13.6
	MISSOURI				
Beaverhead	Lima	84.0	52.4	14.0	40.2
	Clark Canyon	257.2	164.7	151.4	137.9
Ruby	Ruby	38.8		15.0	27.7
Madison	Hebgen Lake	337.5	276.3	269.8	243.3
	Ennis Lake	41.0	29.8	28.8	35.4
Gallatin	Middle Creek	8.0	4.6	3.1	3.6
Missouri	Canyon Ferry	2,043.0	1,611.0	1,479.0	1,606.0
	Hauser & Helena	61.9	51.8	63.0	60.6
	Lake Helena	10.4	10.7	10.9	10.0
	Holter Lake	81.9	77.2	81.0	64.6
	Fort Peck Lake	18,910.0	14,980.0	15,810.0	15,370.0
Smith	Smith River	10.6	6.2	6.9	7.2
	Newlan Creek	12.4	9.8	8.6	--
Musselshell	Bair	7.0	4.6	5.6	4.9
	Martinsdale	23.1	10.6	11.0	9.9
	Deadman's Basin	72.2	53.5	--	49.4
Sun	Gibson	99.0	62.8	35.6	44.6
	Willow Creek	32.2	19.8	23.8	21.8
	Pishkun	32.0	19.3	18.6	16.4
Marias	Lower Two Medicine	11.9	11.3	--	5.8
	Four Horns	19.2	11.2	--	13.1
	Swift	30.0	20.9	12.9	15.4
	Lake Frances	111.9	78.2	62.5	71.0
Milk	Elwell (Tiber)	1,347.0	531.3	516.1	538.9
	Beaver Creek	3.5	1.7	2.7	1.5
	Fresno	127.2	43.0	42.2	66.4
	Nelson	66.8	20.7	40.3	41.9
	HUDSON BAY				
St. Mary's	Lake Sherburne	66.2	38.9	18.8	22.5
	YELLOWSTONE				
Stillwater	Mystic Lake	21.0	3.5	2.5	7.2
Clark's Fork	Cooney	27.4	15.2	15.4	15.3
Tongue	Tongue River	68.0	14.7	15.7	37.0
Bighorn	Bighorn Lake	1,356.0	852.7	881.4	527.8

Missouri River & Hudson Bay Drainages

STREAMFLOW FORECASTS

BASIN, STREAM and/or FORECAST POINT	PERIOD	THIS YEAR FORECAST Thousand Acre Feet	THIS YEAR FORECAST Percent of Average	PAST RECORD THOUSAND ACRE FEET Last Year	PAST RECORD THOUSAND ACRE FEET Average	THIS YEAR FORECAST Thousand Acre Feet	THIS YEAR FORECAST Percent of Average	PAST RECORD THOUSAND ACRE FEET Last Year	PAST RECORD THOUSAND ACRE FEET Average
		APRIL - SEPTEMBER				APRIL - JULY			
RED ROCK RIVER near Monida (1)		76.0	69	113	110	70.0	68	102	103
BEAVERHEAD RIVER near Grant (2)		76.0	44	193	171	70.0	47	162	148
BEAVERHEAD RIVER at Barretts (2)		120	53		226	100	51		196
RUBY RIVER near Alder		61	58		105	50	56		89.0
BIG HOLE RIVER near Melrose		430	54		792	395	54		730
BOULDER RIVER near Boulder		69.0	67	145	103	66.0	68	132	96.7
WILLOW CREEK near Harrison		10.0	46		21.5	9.0	47		19.2
MADISON RIVER near Grayling (3)		342	65	432	523	265	65	328	409
MADISON RIVER near McAllister (4)		575	64	751	892	454	64	646	706
GALLATIN RIVER near Gallatin Gateway		320	56		572	273	56		488
INFLOW MIDDLE CREEK RESERVOIR near Bozeman (5)		15.5	51		30.3	13.4	51		26.2
HYALITE CREEK near Bozeman (6)		25.0	53		47.4	21.5	52		41.0
GALLATIN RIVER at Logan		259	40		649	213	38		557
MISSOURI RIVER at Toston (7)		1,264	47	2,743	2,671	1,070	46	2,377	2,330
SHEEP CREEK near White Sulphur Springs		12.0	52		22.8	10.0	50		19.8
SUN RIVER at Gibson Dam (8)		315	54	520	580	285	54	473	529
BELT CREEK near Monarch		68.0	47		146	60.0	45		134
MISSOURI RIVER at Fort Benton (9)		1,829	44		4,148	1,690	44		3,640
TWO MEDICINE CREEK near Browning (10)		165	64		259	156	64		244
BADGER CREEK near Browning		90.0	68		133	77.0	66		116
MARIAS RIVER near Shelby		325	56	481	577	300	56	444	532
MISSOURI RIVER at Virgelle (11)		2,171	45		4,793	1,900	45		4,238
MISSOURI RIVER near Landusky (11)		2,388	46		5,214	2,100	46		4,586
NORTH FORK MUSSELSHELL RIVER near Delpine		3.4	53		6.4	2.8	51		5.5
SOUTH FORK MUSSELSHELL RIVER near Martinsdale		27.0	44		61.5	25.5	44		57.6
MISSOURI RIVER below Fort Peck Dam (11)		2,206	45		4,929	1,970	45		4,381
MILK RIVER at Eastern Crossing		245	88		278*				
INFLOW LAKE SAKAKAWEA, ND (11)		6,590	49		13,450	6,000	49		12,239
SASKATCHEWAN RIVER BASIN									
SWIFTCURRENT CREEK at Sherburne (12)		106	80	116	132	91.0	79	98.5	115
ST. MARY'S RIVER near Babb (12)		395	79		498	335	79		426

*For the period March - September

1. Adjusted for storage in Lima Reservoir.
2. Adjusted for storage in Lima & Clark Canyon Reservoirs
3. Adjusted for storage in Hebgen Lake.
4. Adjusted for storage in Hebgen Lake & Ennis Lake
5. Sum West Fork Hyalite Creek & East Fork Hyalite Creek above the reservoir.
6. Adjusted for storage in Middle Creek Reservoir.
7. Adjusted for storage in Lima, Hebgen, Ennis, & Clark Canyon Reservoirs.
8. Adjusted for storage in Gibson Reservoir & diversions.
9. Adjusted for storage in Lima, Clark Canyon, Hebgen, Ennis, Gibson, Pishkun, Willow Creek, & Canyon Ferry.
10. Adjusted for storage in Two Medicine Reservoir & diversions in Two Medicine Canal.
11. Adjusted for all upstream reservoirs
12. Adjusted for storage in Lake Sherburne.

ALL FORECASTS PREPARED IN COOPERATION WITH THE NATIONAL WEATHER SERVICE

STREAMFLOW FORECASTS

Most streamflow forecasts are 5 to 10 percent lower than those issued last month. This forecasted spring and summer streamflow is similar to the low years of 1961, 1963, 1966, and 1977.

Runoff is expected to be in the 40 to 65 percent range in the Missouri River headwaters and for most of the downstream tributaries. The main stem of the Missouri River is forecast to have less than one-half of average runoff. Runoff in the St. Mary's River drainage is expected to produce about 80 percent of average streamflow.

The main snowmelt period is expected to occur earlier than usual and the runoff will be smaller. Some shortages of irrigation water will begin to appear on small streams by late June and on larger streams by early to mid July.

Many streams below irrigation diversions are expected to be dry during July and August.

Each irrigator needs to assess the effect the low runoff will have on this summer's operation and consider changes that might reduce the impacts from water shortages.

Most irrigation reservoirs have average or above average water levels this season. This stored water becomes very important in low runoff years.

WATER SUPPLY OUTLOOK

Expressed as "Poor, Fair, Average, Excellent" with Respect to Usual Supply

STREAM or AREA	Flow Period: Spring Season	Flow Period: July Season
Beaverhead	Fair	Poor
Ruby	Fair	Poor
Big Hole	Fair	Poor
Boulder	Fair	Poor
Jefferson	Fair	Poor
Madison	Fair	Poor
Gallatin	Fair	Poor
West-Side Missouri	Fair	Poor
Smith-Belt	Fair	Poor
Sun	Fair	Poor
Teton	Fair	Poor
Marias	Fair	Poor
Judith	Fair	Poor
Musselshell	Fair	Poor
Milk	Fair	Fair
Bear Paws	Poor	Poor
St. Mary's	Fair	Fair

MOUNTAIN SNOWPACK

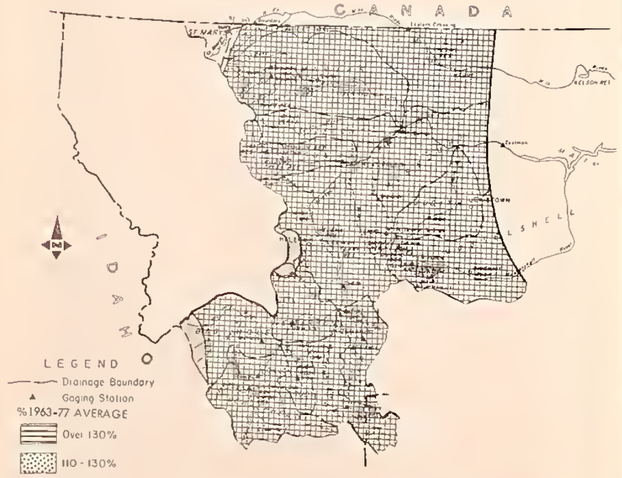
The mountain snowpack remains well below average in most areas. Only three isolated areas along the Continental Divide have snowpack around 70 percent of average. Water stored in the mountain snow in other areas is generally in the 50 to 60 percent range. Some areas, particularly the lower elevations, have 30 to 40 percent snowpack, and it has melted from most valley areas.

It does not appear that any significant improvement in snow conditions will occur this year since 85 percent of the season's snowpack is normally on the ground by March 1.

Soils under the snowpack have about normal moisture levels except in lower elevations where some drying has been noted.

SUMMARY of SNOW MEASUREMENTS
(COMPARISON WITH PREVIOUS YEARS)

RIVER BASIN and/or SUB-WATERSHED	Number of Courses Averaged	THIS YEAR'S SNOW WATER AS PERCENT OF Last Year	THIS YEAR'S SNOW WATER AS PERCENT OF Average
Beaverhead	14	77	64
Ruby	9	84	67
Big Hole	18	85	64
Boulder	12	82	61
Jefferson	53	82	64
Madison	21	77	62
Gallatin	18	79	57
Missouri Headwater	92	80	62
West-side Missouri (Toston-Cascade)	7	93	68
Smith & Belt	6	96	64
Missouri Main-stem	16	95	63
Teton & Sun	6	57	37
Marias	4	83	54
Marias-Teton-Sun	10	71	47
Judith	8	100	61
Musselshell	9	92	61
Judith-Musselshell	17	96	61
Milk	7	63	33
Bear Paws	6	37	14
Missouri (Total)	135	82	61
SASKATCHEWAN			
St. Mary's	3	98	73
Bow River in Alberta	7	100	100



MISSOURI RIVER & HUDSON BAY DRAINAGES
MONTANA
MOUNTAIN SNOW WATER EQUIVALENT

SNOW PILLOW DATA

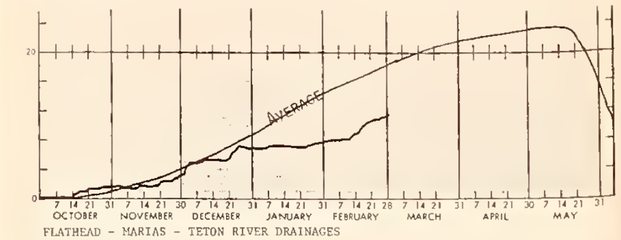
SNOW PILLOW RECORDS

Snow pillows have been installed at about 30 percent of the snow measuring sites in Montana. These pillows provide a continuous record of snowpack accumulation and melt.

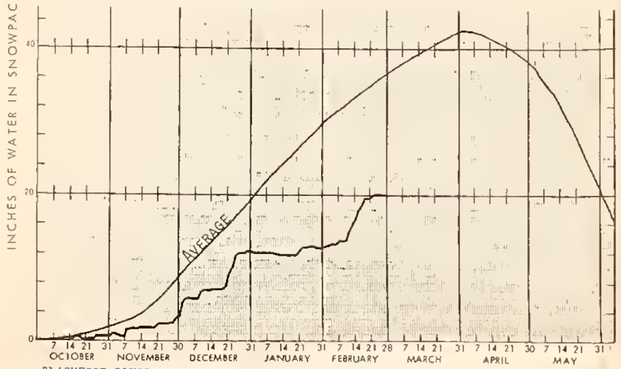
In the past, the snow water content on these pillows was shown for most locations with 2 or 3 sites shown on each graph. This showed the accumulation and melt but did not provide any comparison with the average.

This year, individual sites are graphed, with average snow water content shown for comparison. In most cases the high elevation sites which most nearly represent the snowpack conditions in a drainage have been selected.

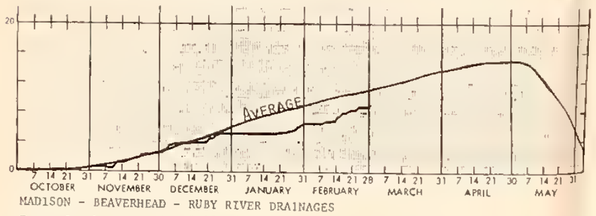
We hope this will provide a more useful graphic representation of snowpack conditions.



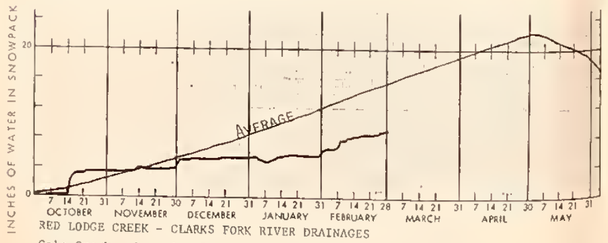
FLATHEAD - MARIAS - TETON RIVER DRAINAGES
Mount Lockhart, elevation 6,400 ft.



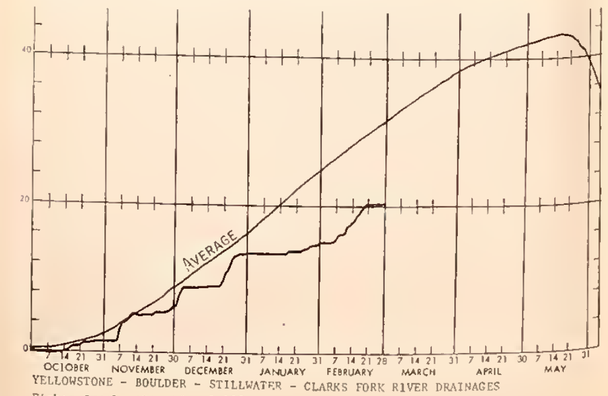
BLACKFOOT RIVER DRAINAGE
Copper Camp, elevation 6,950 ft.



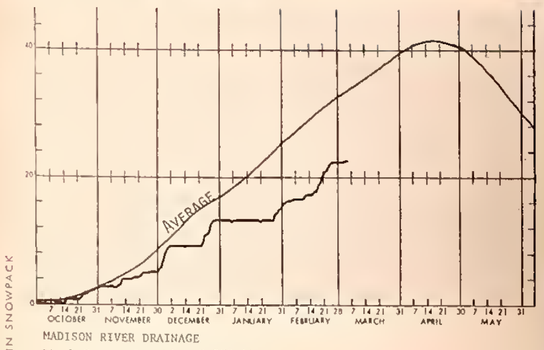
MADISON - BEAVERHEAD - RUBY RIVER DRAINAGES
Tepee Creek, elevation 8,000 ft.



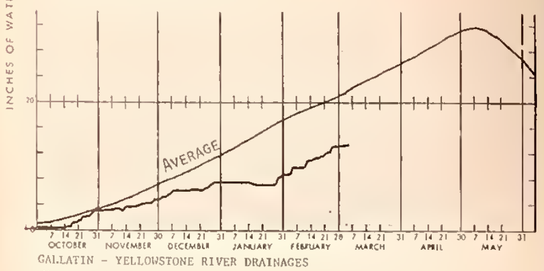
RED LODGE CREEK - CLARKS FORK RIVER DRAINAGES
Cole Creek, elevation 7,850



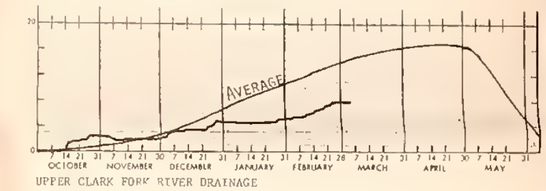
YELLOWSTONE - BOULDER - STILLWATER - CLARKS FORK RIVER DRAINAGES
Fisher Creek, elevation 9,100



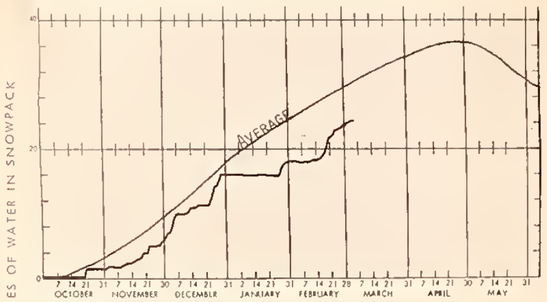
MADISON RIVER DRAINAGE
Black Bear, elevation 7,950 ft.



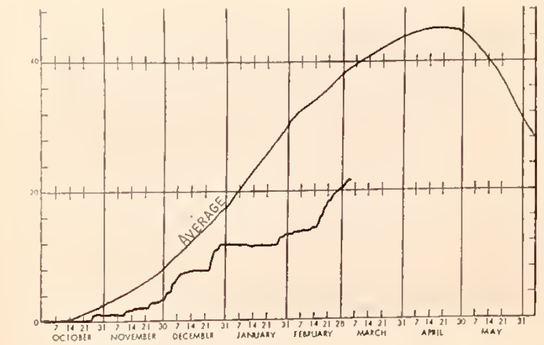
GALLATIN - YELLOWSTONE RIVER DRAINAGES
Shower Falls, elevation 8,100



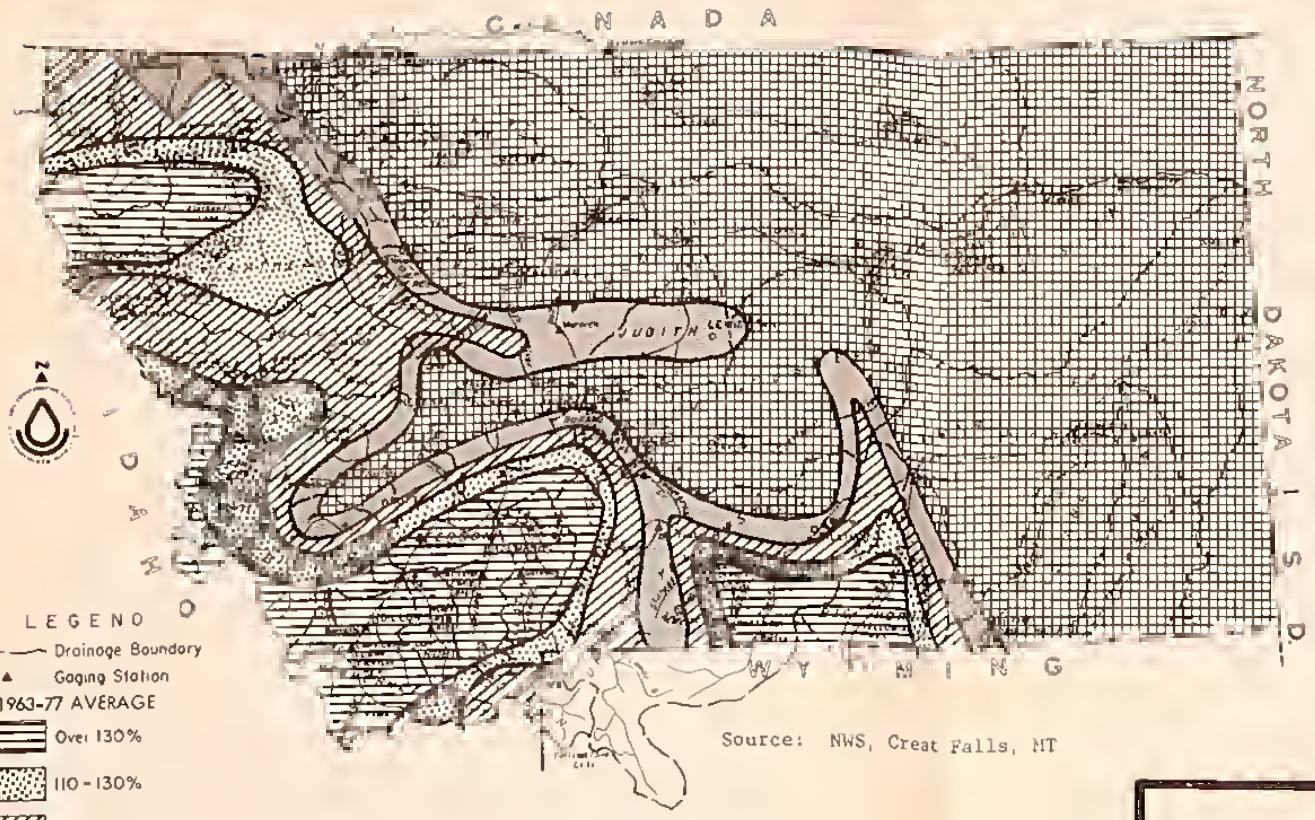
UPPER CLARK FORK RIVER DRAINAGE
Black Pine, elevation 7,100 ft.



KOOTENAI - FLATHEAD RIVER DRAINAGES
Stahl Peak, elevation 6,050 ft.



BITTERROOT RIVER DRAINAGE
Twin Lakes, elevation 6,510 ft.



Source: NWS, Great Falls, MT

VALLEY PRECIPITATION
FEBRUARY 1981

SATELLITE SNOW COVER

MISSOURI RIVER BASIN
Above
Canyon Ferry Dam

DATE	PERCENT SNOW COVER	AVERAGE SNOWLINE ELEVATION IN FEET
November 5, 1980	8	8670
November 16, 1980	94	4450
November 23, 1980	78	5440
November 26, 1980	75E	5590
December 1, 1980	100	3850
December 7, 1980	87	4950
December 13, 1980	55E	6450
December 28, 1980	41	6980
December 31, 1980	31	7370
January 7, 1981	31	7370
January 10, 1981	32	7330
January 18, 1981	37	7120
January 29, 1981	75E	5590
February 4, 1981	82	5230
February 10, 1981	100	3800
February 23, 1981	82	5230
March 1, 1981	73	5680

DATA PROVIDED BY NOAA/NESS

WATER SHORTAGE!
SOME ALTERNATIVES THAT MAY HELP

CHANGE CROPS	Plant crops which require less water and mature early.
REDUCE ACREACE	Reduce your crop acreage. This will help you make better use of your water as well as the amount of seed and fertilizer you need to buy.
CONSIDER ENERCY COSTS	Even if you are able to pump supplemental water, you should compare energy costs with anticipated crop earnings.
CHECK IRRICATION SYSTEM	Check your irrigation systems carefully. Make certain that ditches have no water-wasting weeds or debris to slow delivery, sprinkler heads don't have leaks, pipes have tight connections, and pumps work properly. If new parts or equipment are needed, buy them early.
PLANT BEST LAND	Plant only your best land - it makes most efficient use of water. If your soil has been mapped, local Soil Conservation Service (SCS) personnel can guide you. If not, they can still give you general information.
TECHNICAL ASSISTANCE?	Maintain close contact with the Soil Conservation Service and your local Conservation District for the latest water supply forecast, and for soil information. SCS has water conservation pamphlets and other information that can help irrigators get by with less water.
COST-SHARE OR LOANS?	Maintain close contact with local offices of Agricultural Stabilization and Conservation Service (ASCS) and the Farmers Home Administration (FmHA). If a drought situation develops, funds might be made available for cost-sharing or loans to help you apply special water conservation practices.
CROPS, FEED, FERTILIZER, OR MARKETINC QUESTIONS?	Contact your local Cooperative Extension office for crop selection alternatives, fertilizer recommendations, feed supply conditions, and marketing outlook.

SCS, ASCS, AND FmHA ARE LISTED IN THE PHONE BOOK UNDER "U.S. COVERNMENT, ACRICULTURE, DEPARTMENT OF." COOPERATIVE EXTENSION SERVICE IS USUALLY LISTED WITH LOCAL COUNTY OFFICES.

AGENCIES AND ORGANIZATIONS COOPERATING IN MONTANA SNOW SURVEYS

COVERNMENT AGENCIES
- Canada
  - Department of the Environment
    - Atmospheric Environment Service
    - Water Management Service
  - British Columbia Ministry of Environment
    - Inventory and Engineering Branch, Hydrology Section
  - Alberta Environment
    - Technical Services Division
- Federal
  - Department of the Army - Corp of Engineers
  - Department of Agriculture - Forest Service
    - Soil Conservation Service
  - Department of Commerce - National Environmental Satellite Service
    - National Weather Service
  - Department of Interior - Bureau of Indian Affairs
    - Fish and Wildlife Service
    - Geological Survey
    - National Park Service
    - Water and Power Resources Service
  - Department of Energy - Bonneville Power Administration

STATE AGENCIES
- Montana Conservation Districts
- Montana Department of Fish, Wildlife and Parks
- Montana Department of Natural Resources and Conservation
- Montana State University - Agricultural Experiment Station
- University of Montana - School of Forestry

PRIVATE ORGANIZATIONS
- The Anaconda Company
- Big Sky of Montana
- Butte Water Company
- Flathead Valley Community College
- Montana Power Company

Other organizations and individuals furnish valuable information for snow survey reports. Their cooperation is gratefully acknowledged.

FEDERAL · STATE · PRIVATE
COOPERATIVE SNOW SURVEYS

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